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Mr. Panos Prevedouros
University of Hawaii at Manoa
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2540 Dole Street, Holmes Hall 383
Honolulu, Hawaii 96822-2382

Dear Mr. Prevedouros:

Subject: Honolulu High-Capacity Transit Corridor Project
Comments Received on the Draft Environmental Impact Statement

The U.S. Department of Transportation Federal Transit Administration (FTA) and the City and County of Honolulu Department of Transportation Services (DTS) issued a Draft Environmental Impact Statement (EIS) for the Honolulu High-Capacity Transit Corridor Project. This letter is in response to substantive comments received on the Draft EIS during the comment period, which concluded on February 6, 2009. The Final EIS identifies the Airport Alternative as the Project and is the focus of this document. The selection of the Airport Alternative as the Preferred Alternative was made by the City to comply with the National Environmental Policy Act (NEPA) regulations that state that the Final EIS shall identify the Preferred Alternative (23 CFR § 771.125 (a)(1)). This selection was based on consideration of the benefits of each alternative studied in the Draft EIS, public and agency comments on the Draft EIS, and City Council action under Resolution 08-261 identifying the Airport Alternative as the Project to be the focus of the Final EIS. The selection is described in Chapter 2 of the Final EIS. The Final EIS also includes additional information and analyses, as well as minor revisions to the Project that were made to address comments received from agencies and the public on the Draft EIS. The following paragraphs address comments regarding the above-referenced submittal:

***(1) Traffic Analysis Methodology***

*A technical team evaluated potential approaches for intersection analysis. The team included DTS traffic engineers and traffic engineering consultants each with over 30 years of experience. DTS reviewed the approach with the City and State departments with expertise in traffic modeling, including the Department of Planning and Permitting (DPP) and the Hawaii*

*Department of Transportation (HDOT). Through that process, it was determined that the most appropriate approach to analyzing intersection level-of-service (LOS) in the H-1 corridor was the use of the Highway Capacity Manual (HCM) methodology applied in the SYNCHRO software for the reasons listed in the following paragraphs in this subsection of your comment letter. This method has been used on similar projects, including Crenshaw/Prairie Transit Corridor Study (Los Angeles, CA), Salvation Army Hawaii Kroc Center Traffic & Parking Management Plan (Honolulu, HI), and the KRC/Kalakaua Affordable Housing Development (Honolulu, HI).*

*It should be noted that all LOS methodologies have their advantages and disadvantages. The HCM methodology is considered state-of-the-practice when assessing traffic impacts and is appropriate for verifying the effect of proposed mitigation measures on the transportation system. The HCM methodology provides a high level of confidence in the reporting of observed and forecast traffic conditions in the study area when identifying potential impacts or deficiencies of a roadway system.*

*The HCM methodology considers various characteristics of the roadway network, including signal timing plans, intersection geometry, vehicle and pedestrian movements, and storage bay lengths. Other conventional methodologies, such as Intersection Capacity Utilization (ICU) and Circular 212, do not account for parameters such as signal timings and the multi-modal nature of this corridor. HCM reports the delay experienced by vehicles traveling through an intersection and determines intersection operating conditions for varying ranges of delay. In congested areas and on roadways with closely spaced intersections, the HCM methodology employed in the SYNCHRO software considers upstream and downstream operations (i.e., queuing effects that extend from one intersection to the next). Queue lengths can be estimated for each turning movement to better model the actual traffic operating conditions to ascertain whether queuing extends between locations.*

*HCM is also the basis for the analysis of unsignalized intersections, of which there are 46 in the study corridor. Other methodologies, such as ICU and Circular 212, are not applicable for unsignalized intersection analysis. Using HCM for both types of intersections allows for a consistent approach to the analysis across the entire corridor.*

*The traffic analyses for the Draft and Final EISs, using the HCM methodology, did not conclude that all corridors in the study area are oversaturated. It is clear that some intersections are operating at oversaturated conditions, but this does not occur consistently across the study corridor. The locations of oversaturated conditions are generally isolated intersections. The only corridors that appear to be oversaturated based on this analysis are portions of the H-1 and H-2 Freeways. While the HCM methodology has limitations, under certain specialized circumstances it works well for corridor-level analysis. Where the prospect of saturated conditions was found, such as at major transit center stations, further analysis was performed using micro-simulation models to evaluate more detailed conditions. Hence, the use of the HCM methodology is appropriate for the arterial-level intersection analysis conducted in this study. The results from the use of the HCM methodology provide an accurate representation of the potential traffic impacts that result from the Project.*

***(2) Peak Hour Screenline Level-of-Service Methodology***

*The LOS methodology used in the Draft EIS for the screenline facility analysis was based on the application of accepted and established national standards: (1) 2000 HCM (Transportation Research Board, 2000); and (2) roadway LOS thresholds adapted from Quality/Level-of-Service Handbook (Florida Department of Transportation [FDOT], 2002). The FDOT Handbook is based on information from the 2000 HCM.*

*The methodology used in the Draft EIS combines traffic volumes, roadway classification, speed, density, and peak-hour factors, and produces a LOS value based on projected peak-hour volumes. The LOS was calculated by comparing traffic volumes on a roadway facility to the saturated volume LOS thresholds for each individual facility. The resulting LOS is an accurate reflection of existing and future operations on the H-1 Freeway. The Draft EIS was designed to present a summary of the Project's effect on the transportation system. The detailed analysis of volumes and roadway capacity for each analyzed facility is provided in Tables 3-9 and 3-10 in the Final EIS.*

***(3) Forecasts***

*The process followed in developing travel forecasts is consistent with the guidance from the FTA for projects of this type. The land use data used are from the sources that define the City and State policies for growth and were adopted by the Oahu Metropolitan Planning Organization (OahuMPO) Technical Advisory Committee to be used by the OahuMPO in defining needed long-term transportation plans. Changes to reflect new information or improved forecasting techniques are part of the ongoing effort to develop the best possible forecasts of travel on the island so as to accommodate future ridership and vehicular traffic as effectively as possible. All alternatives studied in the Alternatives Analysis Phase were evaluated with the same version of the travel forecasting model. Section 3.2 of the Final EIS describes changes made since the Draft EIS was published to further improve the model's forecasting ability. These changes were based on guidance from the FTA.*

***(4) Localized Traffic Analysis at and near Stations***

*Detailed traffic analyses were completed for all station areas that are expected to generate heavy vehicular traffic as well as increases in bus, park-and-ride, and drop-off and pick-up activity. The effects of the Project and the required mitigation in these areas are shown in Sections 3.4.3 and 3.4.7 of the Final EIS, respectively.*

***(5) Project Extensions***

*The Project has logical termini at East Kapolei and Ala Moana Center and independent utility from any extensions that may be constructed in the future. The future extensions to West Kapolei, Salt Lake Boulevard, Waikiki, and UH Manoa are discussed in the cumulative impacts sections of Chapters 3 and 4 of the Final EIS. However, the future extensions are not part of this Project; thus, they are not required to be evaluated under Chapter 343 of the Hawaii Revised Statutes and NEPA. Under NEPA, environmental analysis is only required when there is a proposed action by a Federal agency. Here, because the future extensions are not proposed for* *implementation at this time, they are not part of the Project studied in the Final EIS. It would be premature to undertake an environmental analysis of the extensions (beyond the cumulative impacts analysis) because they are not part of the proposed action to be taken by the City and FTA. If the future extensions are proposed for implementation in the future, environmental analysis of the extensions and appropriate alternatives will be undertaken at that time.*

*Since selection of a first project by City Council Resolution 07-039, project information has detailed the limits of the Project and illustrated other areas that were included in the Long-Range Plan as future or planned extensions. The future extensions are discussed in the cumulative impacts sections of Chapters 3 and 4 of the Final EIS. The comment suggests presenting an evaluation of an action that is not proposed for implementation, which as stated above, is not required to be evaluated under Chapter 343 of the Hawaii Revised Statutes and of NEPA.*

***(6) No Build Assessment of ORTP 2030 Congestion Relief Projects***

*The travel forecasting completed for the Project was accomplished under the guidance of the FTA. All projects in Table 2-4 of the Final EIS are included in the network and have been properly evaluated as part of the No Build and Build Alternatives. Population and employment projections were obtained from the City and County of Honolulu, Department of Planning and Permitting.*

*Travel time on the fixed guideway from the Iwilei Station to the East Kapolei Station will only take 36 minutes. This travel time will be consistent and reliable, regardless of conditions on surrounding roadways. The fixed guideway system is planned to operate with two- or three-car trains with a capacity of between 325 and 500 passengers each. At three-minute headways during the peak period, that provides capacity for over 8,500 passengers per peak direction per peak hour. This figure applies in both directions for a total system capacity of over 17,000 passengers per peak hour. The full capacity of the fixed guideway with four-car trains and 90-second headways is over 25,000 passengers per hour per direction, or over 50,000 passengers total. However, once a vehicle leaves the zipper lane or Nimitz Flyover, that vehicle is still subjected to congestion on surrounding roadways.*

***(7) TOD Potential***

*Traffic studies conducted for the Draft and Final EISs considered additional vehicle and bus traffic generated by fixed guideway stations. That analysis is contained in Chapter 3. Measures also are identified in Section 3.4.7 of the Final EIS to mitigate traffic effects at the Pearl Highlands Station. In addition, FTA noise policy, which was used in analyzing the Project, focuses on existing noise levels and existing land uses.*

*The analysis of direct impacts of the Project is focused on construction and operation of rail transit service. However, as discussed in Section 4.19.2 of the Final EIS, transit-oriented development (TOD) is expected to occur in project station areas as an indirect effect of the Project. The increased mobility and accessibility that the Project may provide may also increase the desirability and value of land near stations, thereby attracting new real estate investment* *nearby (in the form of TOD). Planning and zoning around station areas will be conducted and established by the City's Department of Planning and Permitting under a process covered by the City's new TOD Ordinance 09-4.*

***(8) University Avenue***

*As stated previously, the Project terminates at Ala Moana Center and does not extend to the UH Manoa campus. Any future extensions will be evaluated prior to implementation.*

***(9) Ala Moana Station***

*The plan for the Ala Moana Center Station was shown on Sheet RP024 in Appendix A of the Draft EIS and will be included on the same sheet in Appendix B of the Final EIS. The line marked "future extension" will not be constructed as part of the Project and has been deleted in Appendix B of the Final EIS to eliminate confusion. Detailed design has not been completed for extensions beyond Ala Moana Center, but planning-level design would have the guideway continue to follow Kona Street, then transition to Kapiolani Boulevard prior to Mahukona Street.*

*There is no plan to demolish the station at Ala Moana. Some service will continue to rely on the Ala Moana Station even after the line is extended to UH Manoa. Furthermore, the extension has not yet been designed. Any future extension, including to UH Manoa, will be thoroughly evaluated prior to implementation.*

***(10) Double Track by Aloha Stadium***

*The third track near the Aloha Stadium Park-and-Ride allows for vehicle bypass, temporary train storage, and other operating contingencies, such as staging trains for a major event at Aloha Stadium. The additional track was shown in detail in Appendix A of the Draft EIS and is included in the Project's cost estimate.*

***(11) Pearl Harbor Tunnel***

*A Pearl Harbor Tunnel was evaluated by the OahuMPO during preparation of the 2030 Oahu Regional Transportation Plan (ORTP). It was rejected from the project list, but included in the 2030 ORTP as an illustrative project, with a cost estimate of $7 billion in 2005 dollars. The ORTP states that the illustrative project could prove beneficial as a transportation improvement, but that 2030 revenue projections could not support inclusion of the projects in the ORTP. Illustrative projects are not considered a part of the officially endorsed regional transportation plan. Any concerns with the cost estimation for projects associated with the ORTP should be directed to the OahuMPO, as it is not a City agency and is not directly related to the environmental review and planning process for the Project.*

***(12) Federal Funding***

*The plan, as described in the Final EIS, is to begin construction as soon as possible using local funds prior to the execution of a Full Funding Grant Agreement with the FTA. This will ameliorate the effects of cost escalation that would occur if the start of the Project is delayed.*

***(13) DEIS Base Travel Times***

*The results provided in the comment are similar to data shown in Figure 1-10 in the Final EIS, which presents a 75-minute average highway drive time between Waianae and Downtown. As stated in Section 1.2 of the Final EIS, travel times in Table 1-1 are modeled door-to-door.*

*The Nimitz Viaduct is part of State improvements to the highway system and, accordingly, was included in the transportation modeling conducted for 2030 No Build and Project conditions. Effects of the Nimitz Flyover on traffic conditions in 2030 are discussed in Section 3.4.2 of the Final EIS. Travel on the Nimitz Flyover was included for the following travel pairs under the No Build Alternative: Kapolei to Downtown, Ewa to Downtown, and Mililani to Downtown. As shown in Figure 3-7, the Nimitz Flyover does improve transit travel times with the No Build Alternative between certain travel pairs (e.g., between Mililani and Downtown) compared to 2007 conditions. However, as also shown in this figure, travel times improve substantially more with the addition of the Project.*

*According to Table 3-16 in the Final EIS, transit travel time via fixed guideway from the Honolulu International Airport Station to the Downtown Station will take 12 minutes.*

***(14) Transport of Rail Cars to Rail Yard***

*Rail vehicles will be delivered from the port to the yard by truck. Final vehicle assembly will be completed on-site.*

***(15) Rail Travel Times***

*As stated in Section 3.4.2 of the Final EIS, Figure 3-7 represents the time required to complete a trip from origin to destination and assumes that at least a portion of the trip will be made on the fixed guideway system. These times are door-to-door and include walking and transfers.*

*The information provided in the eight-page mailing sent in October 2008 corresponds to Table 3-16 in the Final EIS, which reflects travel time from station-to-station on the fixed guideway system.*

***(16) TheBus Inventory***

*The information contained in Table 3-12 of the Transportation Technical Report is from the National Transit Database for the 2007 Reporting Year based on data provided by DTS. The table includes the number of seats for each vehicle category.*

*Buses taken out of service are those that are scheduled for preventative maintenance in addition to those involving unanticipated accidents and repairs. The national standard for the maximum number of buses that should be included within the inventory for preventative maintenance and unanticipated repairs is 20 percent of the total fleet. This is consistent with the actual numbers experienced by TheBus.*

***(17) TheBoat***

*The information for TheBoat inventory on page 3-31 of the Transportation Technical Report (also appears on page 3-7 in the Draft EIS) has been revised in Addendum 02 to the*

*Transportation Technical Report and Chapter 3 of the Final EIS to reflect that two boats provided service with a third boat available as a spare.*

*Because analysis of TheBoat is not part of the Project evaluated in the EIS, congestion reduction and productivity associated with TheBoat were not analyzed. Ridership forecasts for the Project consider ridership on TheBoat which, in general, has not attracted ridership from the areas likely to be served most effectively by the fixed guideway. In July 2009, the City discontinued TheBoat as a cost-cutting measure. The ridership data attributable to TheBoat were minor and did not have any substantial impact on the results of the traffic model (less than 100 trips per day on TheBoat were predicted in 2030 with the Project). Most passengers likely switched to TheBus when TheBoat was discontinued.*

***(18) Fares***

*The City Council's current policy is to recover between 27 and 33 percent of annual operating costs from the farebox. The policy does not address recovering capital costs from the farebox. If the operating costs rise over time, presumably the City Council would increase fares to maintain the 27 to 33 percent level of recovery. The fixed guideway portion of future transit system operating costs is estimated at less than 20 percent of the total transit system operating cost.*

***(19) Hoopili***

*The commenter is correct in that conditions on the highway will be worse in 2030 under any circumstances and regardless of whether the fixed guideway is implemented. The key comparison is that the Project will improve conditions compared to what they would be if the rail project were not built. As shown in Table 3-14 in the Final EIS, with the fixed guideway system, total islandwide congestion (as measured by vehicle hours of delay) will decrease by 18 percent compared to the No Build Alternative. In addition, traffic volumes were studied at various screenlines in the study corridor. The travel demand forecasting model was used to forecast traffic volumes at these screenlines in 2030, both with and without the Project (Tables 3-9 and 3-10 in the Final EIS). Analysis revealed that traffic volumes at these screenlines would decrease up to 11 percent with the Project, meaning the same number of people will be carried in fewer vehicles. Accordingly, traffic conditions will be better with the fixed guideway than with the No Build Alternative.*

***(20) Forecasts from the OahuMPO Model***

*The forecasts presented in the Draft and Final EISs were prepared using the 2002 OahuMPO travel demand forecasting models as a basis, updated with refinements as described in the <u>Honolulu High-Capacity Transit Corridor Project Model Development, Calibration, and Validation Report</u> (RTD 2009k), and the <u>Honolulu High-Capacity Transit Corridor Project Travel Forecasting Results and Uncertainties Report</u> (RTD 2009l).*

*That element of the OahuMPO travel demand forecasting models, which is used to forecast travel by visitors, was developed using data from a 1991 survey of visitors to Oahu. That* *survey included questions about visits to a set of 25 visitor destinations. These destinations included Dole Cannery Square and Kodak Hula Show/Waikiki Shell. The commenter is correct in that the nature of these destinations has changed since the time of the visitor survey. As a result, the visitor model has been updated to reflect changes that are more recent. The details of that update are discussed in the Model Development, Calibration, and Validation Report in the supporting information to this Final EIS.*

*Experience with modeling suggests that a micro-simulation model is inappropriate for a regional application because it is designed primarily for operational analyses of highways, as well as being extremely time-consuming and costly to apply. Most importantly, it does not guarantee any better results and offers many more opportunities for error and misinterpretation. The OahuMPO travel forecasting model was developed and has been updated and refined, consistent with the guidance from FTA. FTA has reviewed the model and its results throughout the Project and is satisfied that it performs appropriately. The trip purposes mentioned in the comment are typical of regional modeling trip-making and are used in models throughout the world.*

*The coefficient values for each of the key variables in the mode choice model that were developed for the OahuMPO travel demand model were based upon national experience and were consistent with FTA guidance and recommended best practices. The model was carefully calibrated and validated using on-board rider survey data obtained in 2005 for the entire TheBus system. The final set of alternative-specific constants was based entirely upon ridership behavior and patterns exhibited by passengers using TheBus. There were no adjustments made to the model that would favor a fixed guideway system.*

*All best practice travel-demand models consider a range of trip purposes. The Oahu models stratify resident travel by 11 trip purposes:*

- *Journey-to-Work – Home-Based Work*
- *Journey-to-Work – Home-Based Non-Work*
- *Journey-to-Work – Work-Based Non-Work*
- *Journey-to-Work – Non-Home-Based, Non-Work-Based*
- *Journey-at-Work – Work-Based*
- *Journey-at-Work – Non-Work-Based*
- *Non-Work-Related – Home-Based College*
- *Non-Work-Related – Home-Based K-12 School*
- *Non-Work-Related – Home-Based Shopping*
- *Non-Work-Related – Home-Based Other*
- *Non-Work-Related – Non-Home-Based*

*Examples of these trip purposes are described as follows:*

- *A person leaves home and goes to work (Journey-to-Work – Home-Based Work)*
- *A person leaves home heading toward work and stops at the dry cleaner (Journey-to-Work – Home-Based Non-Work)*
- *This person continues on and then stops for a coffee (Journey-to-Work – Non-Home-Based, Non-Work-Based)*
- *This person continues on and reaches work (Journey-to-Work – Work-Based Non-Work)*
- *A person leaves work and goes to lunch (Journey-at-Work – Work-Based)*
- *This person continues on to shop (Journey-at-Work – Non-Work-Based)*
- *This person then returns to work (Journey-at-Work – Work-Based)*
- *A person leaves home and goes to college (Non-Work-Related – Home-Based College)*
- *A person leaves home and goes to high school (Non-Work-Related – Home-Based K-12 School)*

*A full range of trip purposes is required to adequately address the complete spectrum of travel decisions and resulting patterns.*

*An understanding of the travel forecasting model suggests that while there are assumptions that are used in the development of forecasts, they are unrelated to travel times that are the subject of the comment. Travel times are determined within the model itself. Based on assigned free-flow speeds and commonly accepted capacities for various roadways, the model develops travel times in an iterative fashion as traffic moves from one path to another through successive iterations to find the path that minimizes travel time between a given origin and destination pair (avoiding links in the system that have traffic volumes in excess of capacity when possible). The resulting travel time is the time the model uses to determine total trip travel time. This, in turn, determines one of the criteria in determining the likelihood of a trip taking transit, using a particular roadway, taking the bus, etc.*

*There is no travel time "used" to make transit work better. Times are developed internally in the model based on primarily empirical inputs. Moreover, the travel forecasting model is developed with direct oversight of the FTA in accordance with guidance issued by them. The Honolulu model has been closely reviewed by the FTA.*

The FTA and DTS appreciate your interest in the Project. The Final EIS, a copy of which is included in the enclosed DVD, has been issued in conjunction with the distribution of this letter. Issuance of the Record of Decision under NEPA and acceptance of the Final EIS by the

Governor of the State of Hawaii are the next anticipated actions and will conclude the environmental review process for this Project.

Very truly yours,

WAYNE Y. YOSHIOKA
Director

Enclosure